

or only so in appearance, and his own remarks, we regret to say, do not remove the doubt.

Much fault has been found with the name, *moral insanity*, and many worthy persons can scarcely hear it mentioned without being driven from their propriety. Why it should be so very unsatisfactory we could never understand, and are obliged to accept the fact as an illustration of the old couplet,

"I do not like thee, Dr. Fell,
The reason why, I cannot tell."

Nobody denies that disease affects the mental faculties very unequally; that while the intellectual or reflective powers may be greatly disordered so as to produce delusions and false belief, the moral or affective powers present little change, all the patient's relations to others seeming to be marked by his usual sentiments; and that in many other cases, the opposite state of things may occur. It would seem to be a perfectly legitimate exercise of nomenclature to designate the different forms of insanity by the names of the faculties chiefly involved. This course has the merit of being immediately and universally intelligible, for the division of the mental powers into moral and intellectual has long been used and is familiar to the common understanding. Not one of the numerous substitutes offered for the name moral insanity is less liable to objection, but it would be hardly worth our while to expose their deficiencies, for they are obvious enough at sight. Nobody can suppose that the bench and bar would be more inclined to favour the plea of hysterical insanity, or maniacal exaltation, or pseudo-monomania, or malady of doubt, or delirium of the conduct. All they want is that the expert shall be able to say that the party is insane, and that the elements of his insanity are real and obvious, not concealed and supposititious. And we may reckon it as another result of this discussion that it elicited no name for the disease in question preferable to that by which it has been best known.

The subject is by no means exhausted, and we hope that our French brethren in this specialty, with their abounding zeal and their unrivalled opportunities, will continue to inquire and discuss.

I. R.

ART. XXII.—*Diseases of the Chest; being Contributions to their Clinical History, Pathology, and Treatment.* By A. T. H. WATERS, M. D., etc. pp. 418. London: John Churchill & Sons, 1868.

DR. WATERS is favourably known in this country as the author of a prize essay on the Anatomy of the Lungs, and of a paper on Emphysema, both of which are republished in the volume before us. His description of the anatomy of the lungs is excellent. On some points, it is true, we find him at variance with the best authorities on this subject, but he always bases his assertions on numerous microscopic observations. For instance, Dr. Waters contends that the amount of cellular tissue in the lungs is exceedingly small, and describes the walls of the cells as formed of "yellow elastic fibrous tissue, a basement membrane, and an epithelium, together with the capillary vessels constituting the pulmonary

plexus. . . . The basement membrane is thin, homogeneous, and transparent." This differs, as we have said, from what has been written on this subject by other microscopists. In Kölliker's *Microscopical Anatomy* (Amer. ed., p. 579), however, we find the following description: "In the air cells I cannot admit the existence of more than two layers—a fibrous membrane and an epithelium; the former is manifestly the much attenuated mucous membrane and fibrous tunic of the bronchiæ, entirely deprived of the smooth muscles, and consisting of a homogeneous matrix of connective tissue, together with elastic fibres and numerous vessels."

Dr. Waters admits the presence of connective tissue in great abundance in the fetal lungs, but says that it is only demonstrable in the lung of an adult human being, surrounding the bronchial tubes and the larger bloodvessels, and connecting the various lobules with each other. We confess that we are not convinced by the arguments of Dr. Waters, that connective tissue exists to such a slight extent as he would have us believe; the diseases of the lungs sometimes furnish us with reason for thinking that it is more abundantly distributed through these organs. Dr. Waters is also very decided in his conviction that the pulmonary arteries are the vessels which nourish the air cells, as it has always been impossible for him to inject the bronchial arteries farther than the ultimate ramification of the bronchial tubes. The bronchial veins also, according to his observations, do not convey the blood of the bronchial arteries back to the heart, but arise solely from the structures at the root of the lung. The bronchial arteries, on the other hand, empty into the pulmonary veins, and are the nutrient vessels of the pleuræ; hence the fact, that pleurisy frequently occurs uncomplicated with pneumonia.

The air cells attached to the last division of the bronchial tubes constitute, according to Dr. Waters, a lobulette; and these cells are so arranged, as is well known, that they admit of the exposure of the blood on two surfaces to the air; and the capacity of the lungs for the aeration of the blood is still farther increased by the presence of alveoli in the air sacs and the ultimate ramifications of the tubes. The bloodvessels are distributed through the membranes which separate these alveoli, and in this way the extent of surface over which the blood is brought in contact with the air, is very much increased. The bloodvessels of the different lobulettes, Dr. Waters is inclined to think, do not anastomose; and he is certain that those of the lobules do not. All these points have been proved to the author's satisfaction by numerous experiments of injecting the different vessels of the lungs. Thus, if the bronchial artery be injected, the injecting material will pass into the pulmonary vein, and *vice versa*; if the pulmonary vein be tied, it will then pass back into the pulmonary artery through the pulmonary plexus. Dr. Waters admits that it seems unlikely that venous blood should enter the pulmonary vein, but is obliged to accept it as a fact in consequence of the results of numerous experiments.

Pneumonia is the subject of seven chapters, and is exceedingly well treated of by our author, who says that there still exists much discrepancy of opinion concerning some points connected with the morbid anatomy of the disease.

1. The bloodvessels involved in the inflammation.

2. The particular part of the pulmonary substance which is the seat of the disease.

In regard to the first point, Dr. Waters thinks that the pulmonary arteries are the vessels principally, if not solely, involved in the inflammation;

and this opinion is a legitimate consequence of the view which Dr. Waters entertains of the anatomy of the lung. In regard to the seat of the inflammation, Dr. Waters believes it to be the air sacs. If a piece of inflamed lung, he says, be examined microscopically, the cells will be found filled with solid matter, and sometimes moulds of the air cells can be produced by soaking the preparation in spirit. On the other hand, not believing in the existence of any true interstitial tissue, he rejects entirely the theory that the exudation takes place between the walls of the air cells. It is true, he says, these will often be found thickened, but this condition may be explained by the congestion of the bloodvessels. In the third stage, true pus corpuscles are believed to exist in very much less number than is generally supposed, the condition being not so much one of diffuse suppuration as of fatty degeneration; a view which Dr. Walshe claims to have enunciated in the first edition of his work on Diseases of the Chest, and which is the subject of an able and instructive paper by Dr. J. M. Da Costa (*Amer. Journ. Med. Sciences*, N. S., vol. xxx. p. 295), who found the proportion of oil present in the lung to rise from four to eighteen per cent.

The view that the exudation takes place into the interior of the air sacs is the only one generally entertained by the profession: and the fact that the expectoration corresponds in many of its characters with the exudation, certainly seems to lend support to it.

Dr. Waters agrees with Dr. Stokes in thinking that engorgement is not the earliest stage of pneumonia, but is preceded by the stage of arterial injection; the signs by which the latter is recognized are essentially those mentioned by Stokes. The details of two cases in which the stage of arterial injection was distinctly recognized, are given by our author; in both of these cases a loud, harsh, and peculiar respiratory murmur was audible over a portion of the lung, which next day furnished the crepitant râle. The histories of these cases are valuable, as, from the nature of the disease, opportunities either for confirming or contradicting the statement of Stokes are exceedingly rare. The explanation given of the mechanism of the crepitant râle is substantially that of Dr. Carr, of Canandaigua. This râle, Dr. Waters thinks, is by no means confined to pneumonia, but may frequently be heard in oedema of the lungs. Practically, this does not increase the difficulty of the diagnosis of pneumonia, for the other physical signs, and the general symptoms, will generally enable us to come to a correct conclusion.

The treatment recommended by Dr. Waters is very simple. He opens his remarks on this head by saying that the physician should always recollect that the patient, not the disease, is to be treated, and therefore that no plan of treatment will be found equally efficacious in all cases. As a general rule, bleeding, leeching, and even purging, are to be avoided, although the fact that relief to pain, and to some of the other symptoms, occasionally follows the employment of these remedies, is freely admitted. On the other hand, in some cases, presenting the symptoms of sthenic pneumonia, tartar emetic in doses of the sixteenth to the eighth of a grain frequently repeated during the day will often accomplish good. Even larger doses are occasionally necessary, and some cases are detailed where a change from a purely stimulant to the antimonial treatment was productive of benefit to the patient. In cases, however, where the disease assumes a low type, either from the character of the epidemic or from previous debility on the part of the patient, stimulus, together with beef-

tea, must be administered freely; and there is no better indication for the administration of stimulants than extreme frequency of pulse. The occurrence of delirium is rightly regarded as no contraindication to the use of alcohol, for this more frequently depends upon an altered condition of the blood than upon inflammation of the meninges. Other remedies are of course to be given to meet special indications—*e. g.*, opium, carbonate of ammonia, chloric ether, and the like. Rubefacients to the chest are recommended in the early stage, while later a blister is to be used.

The chapters on pneumonia finish with a table, containing the results of treatment in forty-four uncomplicated cases, among which we find but one death recorded; the ages of the patients treated ranging from six to fifty-five years. Treatment so simple as that here recommended, we are convinced from some experience, would not be followed by results so favourable in this country; but we must admit that Dr. Water's cases appear to be conscientiously reported.

A very large part of the book is devoted to the consideration of the subject of emphysema. The author says time has only served to confirm the opinions which he held at the time he published his paper on this subject. Two kinds of emphysema are believed to exist: 1, vesicular emphysema; 2, interlobular emphysema. Of the first kind there are three varieties: 1, partial lobular emphysema; 2, lobular emphysema; 3, lobar emphysema. The names of these different varieties carry with them, to some extent, the nature of the emphysema which they represent. The first variety is exceedingly infrequent, except as an accompaniment of the other two, and the third is decidedly the most important and the most frequent.

The interlobular form is generally a result of the lobar form. When this has advanced to a considerable degree, it can readily be understood from the arrangement of the areolar tissue at the root of the lung, how it is that subpleural emphysema and emphysema of the head and neck will be an occasional complication.

Emphysema Dr. Waters believes to be due to a degenerating process of the tissue of the lungs, and he bases this assumption, 1st, upon the high degree of development the disease often reaches without any previous history of violent or long-continued cough, either in connection with bronchitis, hooping-cough, or any similar affection 2d. The frequency with which the disease attacks the whole of both lungs, and the uniformly equal character of the morbid changes often observed throughout all parts of the lungs. 3d. The hereditary nature of the disease.¹ 4th. The manner in which the disease is influenced by certain remedial measures which are known to act beneficially on other diseases attended with degeneration of tissue. But, although fully a believer in the degeneration of tissue which takes place in some cases, Dr. Waters has not been able to discover its nature either by chemical or microscopical tests. He regards as not proven the theory of Mr. Rainey, that fatty degeneration exists, as this distinguished observer's deductions appear to have been made from experiments upon a single specimen of emphysema; and rejects also the theory of Mr. Jenner, that it is due to fibrous degeneration, the result of an exudation of lymph, as he has seen many cases in which

¹ An observation of Jackson is quoted to show that the disease is decidedly hereditary; thus of twenty-eight emphysematous patients, eighteen were born of parents affected with the same disease. On the other hand, of fifty people not affected with emphysema, only three had parents with emphysematous lungs.

there was not the slightest ground for supposing that any antecedent congestion had existed.

In the next chapter are discussed very ably the causes of the local forms of emphysema. The inspiratory theory, either as originally proposed by Laennec, or subsequently modified by Gairdner, is rejected *in toto*. Laennec's theory, as is well known, is based upon the greater force of the inspiratory than of the expiratory act, in consequence of which plugs of mucus are drawn down into the bronchi during the inspiration, which the subsequent expiration fails to dislodge, and which produce, as a necessary result, a distension of the air cells attached to the bronchus. Hutchinson has proved that the expiratory movement is as powerful as the inspiratory, and it is now well known that inspissated mucus is more likely to produce collapse than over distension of a portion of the lung, a fact which has been proved by the experiments of Traube and Mendelsohn, who pushed small hard bodies down the bronchial tubes of animals, and found that the air sacs connected with the obstructed bronchus became red and deprived of air. Gairdner, from the fact that emphysema, in one part of the lung, is often associated with collapse in another, has looked upon the association as effect and cause, the emphysema being due to a want of a proper support by the collapsed lobule to the emphysematous lobule. If this view were correct, the collapsed and emphysematous lobules should be in close proximity; but this is, as is well known, not the case, for while the former are generally found in the lower and posterior portion of the lung, the latter occupy the upper and anterior portion.

Having dismissed satisfactorily the inspiratory theory, our author proceeds to discuss the other. The arguments used by him in support of the latter are certainly forcible. He calls attention to the well-known fact that the parietes of the chest are weakest above the clavicles, and that during coughing, which may be regarded as a violent expiration, the infra-clavicular spaces may frequently be observed to be distended, and that their percussion will give a tympanitic sound. This distension he explains in the following way: "Violent expiratory efforts are chiefly made with the abdominal muscles, and the most powerful agents are the recti; the contraction of these muscles, forcing upwards the abdominal viscera and the diaphragm, produces the greatest amount of compression at the base of each lung; the air is consequently driven upwards in a strong current. There being no corresponding force acting at the upper part of the chest, on the apex of the lung, this latter is not emptied; on the contrary, it becomes forcibly distended by the upward current. Further, the strong currents of air from the central and basic portions of the lungs overcome those from the thin portions; and thus these latter, instead of being emptied, become, like the apex, forcibly distended."

The occurrence of emphysema after chronic bronchitis, pertussis, or any other disease of which coughing is a frequent symptom, is readily explained by the forced expirations; while there can be no doubt that long-continued inflammation, by causing a diminution in the nutrition of the air cells, leads to their more ready distension.

The symptoms of emphysema are the subject of the next chapter. In regard to the *râle*, called, by Laennec, *râle crépitant sec à grosses bulles*, Dr. Waters says that it is due to a collection of mucus in the bronchial tubes, and is therefore essentially a mucous *râle*. He does not, however,

mention the fact that the enlarged and prominent air cells will occasionally give rise to a grazing or friction sound.

Emphysema may prove fatal either in consequence of intercurrent bronchitis, with copious secretion, where the patient is too weak to get rid of the accumulation in the bronchial tubes, or from the tendency which exists in this disease to the formation of fibrinous clots in the heart and large vessels. Finally, Dr. Waters believes that there is no immunity enjoyed by the emphysematous from the deposition of tubercle on account of the so-called vensosity of the blood; while the fact that emphysema may sometimes complicate tubercle is fully admitted by him.

The next two chapters are taken up with the consideration of œdema, gangrene, and apoplexy of the lung. These chapters, although well worth reading, contain nothing absolutely new. Dr. Waters insists that the effusion in œdema and apoplexy takes place into the air sacs, and not into an intra-vesicular structure.

A clinical lecture on pleurisy next follows. In this the following points are especially discussed: 1. The liability of the disease to be induced or followed by phthisis. 2. The necessary alteration of structure which it leaves behind, making its prognosis more unfavourable than that of pneumonia. 3. The artery involved in the inflammation, which Dr. Waters believes to be the bronchial, as this is the nutrient artery of the pleuræ. The treatment of this disease consists in the avoidance of depletory remedies and of mercury, and in the administration of tonics and stimulants. The external application of iodine is believed to be of much service in promoting the absorption of the effusion, although sometimes it has been known to produce a certain amount of feverishness. We are also cautioned against putting off the operation of *paracentesis thoracis* until too late.

Phthisis is treated of somewhat more in detail, most of the article on this subject being made up of extracts from clinical lectures. Dr. Waters abstains purposely from any discussion of the nature of tubercle, and therefore dwells particularly upon the causes, symptoms, prophylaxis, and treatment of the disease. The history and symptoms of this disease, he says, teach us that it is one which has its origin in impaired nutrition, and the local lesions are merely manifestations of this. Phthisis can be developed even in those not predisposed to it, by any cause which very much depresses the forces; hence its frequency in those who live in small alleys and ill-ventilated chambers. How potent a cause of phthisis this is, is shown by the mortality among animals confined in badly ventilated menageries. Cold is by no means so frequent a cause as is imagined by many, and to prove this Dr. Waters quotes some observations of Dr. Macrae on the Isle of Lewis, which has a cold, wet, and stormy climate, and yet in a population of 8500, furnished in three years but four deaths from phthisis; and of M. Lombard, who says that the low lands or the middle regions of the Alps, present a large number of phthisical persons. On the other hand the disease becomes more rare as we ascend the heights, so that above 1000 to 1200 metres only a few isolated cases are met with; and between 1200 and 1500 the disease disappears altogether. In this connection it may be well to point out the immunity which certain portions of our own country enjoy, where the mean range of the thermometer is low, as at St. Paul's, and on the shores of Lake Superior.

Our author is also of the number of those who regard phthisis as a

curable disease, but the patient is ever afterwards to regard himself as, to a certain extent, an unsound man—as one who is more than ever predisposed to phthisis, and should, therefore, no matter whether at home or abroad, be prepared to yield full obedience to all the laws of hygiene. Exercise in the open air, even in stormy weather, if he be well protected by woollen clothing, may be permitted; and cold bathing and sponging will often be found serviceable. A change of climate will sometimes be of advantage, and to avoid the long winters of England the patient may be sent to Australia, by way of the Cape of Good Hope. Severe labour, whether mental or physical, is to be avoided. The medicinal treatment of this disease consists in the administration of cod-liver oil, quinia, and iron. Where cod-liver oil nauseates, glycerine may be substituted. Iron will sometimes aggravate the symptoms, and its use should then be suspended. Cough-mixtures generally nauseate and destroy the appetite, and had therefore better be avoided. Mild counter-irritation, as that produced by the application of tincture of iodine, is often of service. Dr. Waters believes that the tubercles are deposited in the air sacs, but admits that they are sometimes found in the smaller bronchial tubes.

The second part of Dr. Waters' book comprises the diseases of the heart and thoracic aorta. Dr. Waters is disposed to think that the musculi papillares do not close the auriculo-ventricular valves, as has been thought, but that their sole function is to prevent the valves being pushed back into the auricles—in fact, to hold them in such a way as to prevent regurgitation into the auricles; and he explains the closure of the valves by reference to the fact that they contain “a quantity of yellowish elastic fibres, which curl up, and thus draw the margins of the valve upwards, and inwards, towards the centre of the opening.” The explanation of the second sound is that generally given, *i. e.*, the vibration produced by the closure of the sigmoid valves. The first sound he believes, in like manner to be due to the closure of the auriculo-ventricular valves, thus excluding the impulse, the muscular contraction, the rush of blood through the narrowed orifices of the great arterial trunks, the collision of the particles of the blood among themselves and with the parietes of the heart, and the closure of the auriculo-ventricular valves, from any part in the causation of this sound. Dr. Waters does not consider that the impulse is of the nature of a blow, but that it “results from the ventricles in their contraction assuming a globular form, and consequently, pushing out the yielding intercostal spaces.” Besides which, we are perfectly familiar with the fact, that the first sound is heard distinctly if the stethoscope be placed directly on the exposed heart of an animal.

In relation to the muscular contraction of the heart, Dr. Waters asks why, if the contraction of the ventricles gives rise to sound, the contraction of the auricles should be noiseless? If to this question the answer be returned, that the auricle is a weak muscle compared with the ventricle, Dr. Waters replies that the auricle of an adult is of far greater power than the ventricle of a fœtus; and to prove his position he refers to some experiments of Dr. Halford. In these experiments, the veins leading to the heart being compressed there was no sound heard, although the muscular contraction continued; the pressure being removed, the sounds were again heard. It will be recollected that Rouanet, in his thesis, says, “The greater size, thickness, and extensibility of the membrane, render the sound duller, and the substance to which it is attached modifies the quality of the sound in proportion to its thickness, softness, and

elasticity;" hence the difference which is perceptible between the first and second sound. The same view is supported by the experiment of Mr. Brakyn.

A few clinical remarks on pericarditis follow. Regarding, as Dr. Waters does, the adhesion of the opposite surfaces of the pericardium as the most favourable result that can occur in this disease, he deprecates its treatment by mercury, which he thinks has a tendency to diminish the plasticity of the blood and of the exudation. In the rheumatic form the alkalies should be given in large doses, and, in all cases, opium in pill form will be found a valuable remedy. Even in acute cases stimulus will be found useful. In the course of this lecture Dr. Waters gives an explanation of the dicrotism of the pulse, which is found in all diseases of low type. This dicrotism the sphygmograph has demonstrated to be present in a slight degree in health, and was believed by Marey to be due to an echo or reflux produced at the bifurcation of the aorta. While agreeing with Marey that the dicrotism is due to a reflux, Dr. Waters believes this reflux to be produced by the closure of the sigmoid valves, and, of course, in conditions of system where the tension of the arteries is feeble, the dicrotism will be most marked.

The next chapters contain some clinical remarks on the subject of fatty degeneration of the heart. Dr. Waters holds that this disease is more common than is generally supposed, especially in very obese persons, and explains its occurrence in them by their habits of inactivity, and by the cramping effects upon the muscles of the heart, which the fat deposited in its walls must have. The physical signs of fatty degeneration, it must be confessed, are very unsatisfactory; the most reliable, perhaps, being the diminution in the intensity of the first sound, and the diminished force of the impulse, together with a small and intermittent pulse. Among the general symptoms which indicate its presence are, the tendency which the heart manifests to be thrown into tumultuous action by the slightest cause, frequent sighing, a numbness in the fingers of the left hand, and the characteristic angina. Dr. Waters does not regard the presence of the arcus senilis as positive proof of the existence of fatty degeneration; nor, on the other hand, does its absence render the diagnosis impossible. It is only important as showing a tendency to fatty degeneration. Fatty degeneration may frequently be the cause of a fatal termination of an acute disease; but if the patient be careful, prolonged life is possible. The treatment should consist in the administration of iron and other tonics.

Next in order comes a clinical lecture on diseases of the valves, and the reports of cases contained in this lecture will be found to contain much valuable information. The existence of a valvular disease sufficient to cause a murmur, by no means produces incapacity for the performance of the ordinary duties of life. On the contrary, occupation, by calling the patient's attention away from himself, will often be found of positive service. As the greatest evil that can befall a patient with valvular disease is for his heart to become fatty, the greatest care should be exercised that the muscular structure of the heart be kept in a healthy condition. The rules given for the recognition of the different murmurs are excellent. The direct mitral murmur, we are told, occasionally occurs, but not nearly so frequently as constriction of this orifice. Dr. Waters is not disposed to think that the sphygmograph will prove to be a valuable aid in the diagnosis of cardiac disease, and the truth of this opinion our own expe-

rience confirms; for recently, in a well-marked case of aortic regurgitation, this instrument failed to give the characteristic trace, and with other lesions of the valves the tracings give us very little information in regard to the nature and seat of the lesion. We find Dr. Waters at variance with the generally received opinion that aortic insufficiency is the lesion which is most apt to cause sudden death. With Dr. Stokes, he thinks that it is mitral insufficiency. He also thinks that aortic disease is compatible with a long life; but mitral disease, by the secondary lesions which it entails, generally gives rise to an early death.

Eight cases of aneurism are next reported, and they furnish the occasion for some very happy remarks in regard to the diagnosis and treatment of this disease, although we could have wished that Dr. Waters had treated the subject more in detail, for there are few diseases of the chest which perplex the student more than this. He is not disposed to place much reliance upon the medicinal treatment of this disease, which should consist in an effort, first, to promote the deposition of fibrin in the sac; and secondly, to improve the nutrition of the arterial coats. To fulfil the first indication, nothing is more certain than rest, long continued; acetate of lead, iodide of potassium, etc., having failed in Dr. Waters' hands.

A notice of the chapters on Asphyxia (apnoea) has already appeared in this Journal, July, 1861, p. 268.

Appended is a chapter on the treatment of disease by alcohol.

We have thus passed in review Dr. Waters' admirable book, which we regard as a very valuable addition to the works on diseases of the chest. Many of the chapters being really clinical lectures, the subjects treated of are presented to the student in the most attractive of all forms. In a few points we have found Dr. Waters to differ from those who are generally considered authorities on his subject, but for the most part there is little that any would find fault with, and much that all will commend.

J. H. H.

ART. XXIII.—*The Morbid States of the Stomach and Duodenum and their Relations to the Diseases of other Organs.* By SAMUEL FENWICK, M. D. 8vo. pp. 394. London: John Churchill & Sons, 1868.

WHEN the alimentary canal was arbitrarily divided by an imperfect physiology into sections of misunderstood function, and the pylorus was made to constitute a rigid line of demarcation between stomach and bowel, digestion of food and formation of feces, the subject most interesting in special pathology, and most immediately important in therapeutics, was darkly obscured. Then came the great discoveries that different substances are prepared for the purposes of nutrition by different intestinal fluids, and that secretion and absorption occur simultaneously. To these was added a truer view of the function of mucous membranes, and a recognition of the powerful determining influence which epithelial structures have upon the conditions of health and disease. The more intelligent attempt, thus rendered possible, to connect morbid changes of the digestive canal with clinical phenomena, has been zealously pursued, and in the elaborate works of Budd, Handfield Jones, Chambers, Brinton, Habershon, Fox, and other investigators of equal ability and faithfulness, we have a mass of information